# MATHEMATICS CROSSWALK
# 2008 MATHEMATICS STANDARD TO 2003 MATHEMATICS STANDARD
## GRADE 2

| MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL | | | | |
|---|---|---|---|---|
| **Strand 1: Number and Operations** | | | | |
| **CONCEPT** | **2008 PO** | **ITEM DESCRIPTION** | **2003 PO** | **ITEM DESCRIPTION** |
| **1. Number Sense** | 1 | Express whole numbers 0 to 1000, in groups of hundreds, tens and ones using and connecting multiple representations. | 1 | Make a model to represent a given whole number 0 through 999. |
| | | | 2 | Identify a whole number represented by a model with a word name and symbol 0 through 999. |
| | | | 4 | Identify whole numbers through 999 in or out of order. |
| | | | 5 | Write whole numbers through 999 in or out of order. |
| | | | 7 | State verbally whole numbers, through 999, using correct place value (e.g., A student will read 528 as five hundreds, two tens, and eight ones.). |
| | | | 8 | Construct models to represent place value concepts for the one's, ten's, and hundred's places. |
| | | | 9 | Apply expanded notation to model place value through 999 (e.g., 378 = 3 hundreds + 7 tens + 8 ones). |
| | 2 | Count forward to 1000 and backward from 1000 by 1s, 10s, and 100s using different starting points. | 3 | Count aloud, forward or backward, in consecutive order (0 through 999). |
| | 3 | *Identify numbers which are 100 more or less than a given number to 900.* | | |
| | 4 | Compare and order whole numbers through 1000 by applying the concept of place value. | 11 | Compare two whole numbers through 999. |
| | | | 13 | Order three or more whole numbers through 999 (least to greatest or greatest to least). |
| | | | M02-S1C2-13 | Apply the symbols: +, -, x, ÷, =, ≠, <, >, %. |

* This performance objective is new to the 2008 Mathematics Standard Articulated by Grade Level.

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| Strand 1: Number and Operations | | | | |
|---|---|---|---|---|
| **CONCEPT** | **2008 PO** | **ITEM DESCRIPTION** | **2003 PO** | **ITEM DESCRIPTION** |
| **1. Number Sense** | 5 | Count money to $1.00. | 16 | Count money through $5.00 using manipulatives and pictures of bills and coins. |
| | | | 17 | Identify the value of a collection of money using the symbols ¢ and $ through $5.00. |
| | 6 | Sort whole numbers through 1000 into odd and even, and justify the sort. | 10 | Identify odd and even (including 0) whole numbers through 999. |
| | M02-S3C3-01 | **Moved to Strand 3 Concept 3** | 6 | State equivalent forms of whole numbers using multiples of 10 through 1,000 (430 + 200 = 600 + 30). |
| | M01-S1C1-05 | **Moved to Grade 1** | 12 | Use ordinal numbers. |
| | M03-S1C1-05 | **Moved to Grade 3** | 14 | Make models that represent given fractions (halves and fourths). |
| | M03-S1C1-05 | **Moved to Grade 3** | 15 | Identify in symbols and words a model that is divided into equal fractional parts (halves and fourths). |
| | M02-S1C2-01 | **Moved to Strand 1 Concept 2** | 18 | Use decimals through hundredths in contextual situations with money. |
| | M04-S1C1-04 | **Moved to Grade 4** | 19 | Compare two decimals using money, through hundredths, using models, illustrations, or symbols. |
| | M05-S1C1-01 | **Moved to Grade 5** | 20 | Distinguish the equivalency among decimals, fractions and percents (e.g., half-dollar = 50¢ = 50%). |

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|---|---|---|---|---|
| **CONCEPT** | **2008 PO** | **ITEM DESCRIPTION** | **2003 PO** | **ITEM DESCRIPTION** |
| **2. Numerical Operations** | 1 | Solve contextual problems using multiple representations involving<br>• addition and subtraction with one- and/or two-digit numbers,<br>• multiplication for 1s, 2s, 5s, and 10s, and<br>• adding and subtracting money to $1.00. | 8 | Solve word problems using addition and subtraction of two 2-digit numbers, with regrouping AND two 3-digit numbers without regrouping. |
| | | | 17 | Add and subtract money without regrouping using manipulatives and paper and pencil, through $5.00. |
| | | | M02-S1C1-18 | Use decimals through hundredths in contextual situations with money. |
| | 2 | Demonstrate the ability to add and subtract whole numbers (to two digits) and decimals (in the context of money)<br>• with up to three addends and<br>• to $1.00. | 1 | Demonstrate the process of addition through two three-digit whole numbers, using manipulatives. |
| | | | 2 | Demonstrate the process of subtraction using manipulatives with two-digit whole numbers. |
| | | | 4 | Add one- and two-digit whole numbers with regrouping. |
| | | | 5 | Subtract one- and two-digit whole numbers with regrouping. |
| | | | 6 | Add 3 one- or two-digit addends. |
| | 3 | Demonstrate fluency of addition and subtraction facts. | 3 | State addition and subtraction facts. |
| | 4 | Apply and interpret the concept of addition and subtraction as inverse operations to solve problems. | 12 | Apply grade-level appropriate properties to assist in computation. |
| | 5 | Create and solve word problems based on addition and subtraction of two-digit numbers. | 8 | Solve word problems using addition and subtraction of two 2-digit numbers, with regrouping AND two 3-digit numbers without regrouping. |
| | | | M02-S5C1-01 | Create contextual problems that require addition or subtraction with one- or two-digit numbers. |

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|---|---|---|---|---|
| **CONCEPT** | **2008 PO** | **ITEM DESCRIPTION** | **2003 PO** | **ITEM DESCRIPTION** |
| **2. Numerical Operations** | 6 | Demonstrate the concept of multiplication for 1s, 2s, 5s, and 10s. | 10 | State multiplication facts: 2s, 5s and 10s. |
| | 7 | *Describe the effect of operations (addition and subtraction) on the size of whole numbers.* | | |
| | 8 | Apply properties to solve addition/subtraction problems<br>• identity property of addition/ subtraction,<br>• commutative property of addition, and<br>• associative property of addition. | 11 | Demonstrate the associative property of addition [e.g., (3 + 5) + 4 = 3 + (5 + 4)]. |
| | | | 12 | Apply grade-level appropriate properties to assist in computation. |
| | | **REMOVED (This skill is required throughout the standard).** | 7 | Select the grade-level appropriate operation to solve word problems. |
| | | **REMOVED** | 9 | Count by multiples of three. |
| | M02-S1C1-04<br>M02-S3C3-02 | **Moved to Strand 1 Concept 1 and Strand 3 Concept 3 (=, ≠, <, >)** | 13 | Apply the symbols: +, -, x, ÷, =, ≠, <, >, %. |
| | | **REMOVED (+, -, x, ÷,%)** | 13 | Apply the symbols: +, -, x, ÷, =, ≠, <, >, %. |
| | | **REMOVED (This skill is required throughout the standard).** | 14 | Use grade-level appropriate mathematical terminology. |
| | M05-S1C2-01 | **Moved to Grade 5** | 15 | Demonstrate addition of fractions with like denominators (halves and fourths) using models. |
| | M05-S1C2-01 | **Moved to Grade 5** | 16 | Demonstrate subtraction of fractions with like denominators (halves and fourths) using models. |

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| Strand 1: Number and Operations | | | | |
|---|---|---|---|---|
| **CONCEPT** | **2008 PO** | **ITEM DESCRIPTION** | **2003 PO** | **ITEM DESCRIPTION** |
| **3. Estimation** | 1 | *Use estimation to determine if sums of two 2-digit numbers are more or less than 20, more or less than 50, or more or less than 100.* | | |
| | M03-S1C3-01 | **Moved to Grade 3** | 1 | Solve problems using a variety of mental computations and reasonable estimation. |
| | M02-S4C4-02 | **Moved to Strand 4 Concept 4** | 2 | Estimate the measurement of an object using U.S. customary standard and non-standard units of measurement. |
| | M03-S4C4-02 | **Moved to Grade 3** | 3 | Compare an estimate to the actual measure. |
| | M03-S1C3-01 | **Moved to Grade 3** | 4 | Evaluate the reasonableness of an estimate. |

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| Strand 2: Data Analysis, Probability, and Discrete Mathematics | | | | |
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| **CONCEPT** | **2008 PO** | **ITEM DESCRIPTION** | **2003 PO** | **ITEM DESCRIPTION** |
| **1. Data Analysis (Statistics)** | 1 | Collect, record, organize, and display data using pictographs, frequency tables, or single bar graphs. | 2 | Make a simple pictograph or tally chart with appropriate labels from organized data. |
| | 2 | Formulate and answer questions by interpreting displays of data, including pictographs, frequency tables, or single bar graphs. | 3 | Interpret pictographs using terms such as most, least, equal, more than, less than, and greatest. |
| | | | 4 | Answer questions about a pictograph using terms such as most, least, equal, more than, less than, and greatest. |
| | | | 5 | Formulate questions based on graphs, charts, and tables. |
| | | | 6 | Solve problems using graphs, charts, and tables |
| | | **REMOVED** | 1 | Formulate questions to collect data in contextual situations. |
| **2. Probability** | | **No performance objectives at this grade level.** | | |
| | M04-S2C2-01 | **Moved to Grade 4** | 1 | Name the possible outcomes for a probability experiment. |
| | M04-S2C2-01 | **Moved to Grade 4** | 2 | Predict the most likely or least likely outcome in probability experiments (e.g., Predict the chance of spinning one of the 2 colors on a 2-colored spinner.). |
| | M05-S2C2-02 | **Moved to Grade 5** | 3 | Predict the outcome of a grade-level appropriate probability experiment. |
| | M05-S2C2-02 | **Moved to Grade 5** | 4 | Record the data from performing a grade-level appropriate probability experiment. |
| | M05-S2C2-02 | **Moved to Grade 5** | 5 | Compare the outcome of an experiment to predictions made prior to performing the experiment. |
| | M05-S2C2-02 | **Moved to Grade 5** | 6 | Compare the results of two repetitions of the same grade-level appropriate probability experiment. |

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| Strand 2: Data Analysis, Probability, and Discrete Mathematics | | | | |
|---|---|---|---|---|
| **CONCEPT** | **2008 PO** | **ITEM DESCRIPTION** | **2003 PO** | **ITEM DESCRIPTION** |
| **3. Systematic Listing and Counting** | 1 | List all possibilities in counting situations. | 1 | Make arrangements that represent the number of combinations that can be formed by pairing items taken from 2 sets, using manipulatives (e.g., How many types of sandwiches can one make with 3 different types of fillings and 2 types of bread if only one type of bread and 1 kind of filling is used for each sandwich?). |
| | 2 | *Solve a variety of problems based on the addition principle of counting.* | | |
| **4. Vertex-Edge Graphs** | 1 | Color simple pictures or maps using the least number of colors and justify the coloring. | M00- to M05-S2C1-01 | Color pictures with the least number of colors so that no common edges share the same color (increased complexity throughout grade levels). |
| | 2 | *Build vertex-edge graphs using concrete materials and explore properties of vertex-edge graphs<br>• number of vertices and edges,<br>• neighboring vertices, and<br>• paths in a graph.* | | |
| | 3 | *Construct simple vertex-edge graphs from simple pictures or maps.* | | |

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| Strand 3: Patterns, Algebra, and Functions | | | | |
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| **CONCEPT** | **2008 PO** | **ITEM DESCRIPTION** | **2003 PO** | **ITEM DESCRIPTION** |
| **1. Patterns** | 1 | Recognize, describe, extend, create, and find missing terms in a numerical or symbolic pattern. | 2 | Extend a grade-level appropriate repetitive pattern (e.g., 12, 22, 32, ___, ___, ___). |
| | | | 3 | Create grade-level appropriate patterns. |
| | 2 | Explain the rule for a given numerical or symbolic pattern and verify that the rule works. | 1 | Communicate a grade-level appropriate pattern, using symbols or numbers (e.g., ∇, O, Δ, ∇, O, Δ, ∇, ___, ___, ___). |
| **2. Functions and Relationships** | 1 | Describe a rule that represents a given relationship between two quantities using words or pictures. | 1 | Describe the rule used in a simple grade-level appropriate function (e.g., T-chart, input/output model, and frames and arrows). |
| | | | M04-S3C2-01 | Describe the rule used in a simple grade-level appropriate function (e.g., T-chart, input/output model). |
| | | | M05-S3C2-01 | Describe the rule used in a simple grade-level appropriate function (e.g., T-chart, input/output model). |
| **3. Algebraic Representations** | 1 | Record equivalent forms of whole numbers to 1000 by constructing models and using numbers. | M02-S1C1-06 | State equivalent forms of whole numbers using multiples of 10 through 1,000 (430 + 200 = 600 + 30). |
| | 2 | Compare expressions using spoken words and the symbols =, ≠, <, and >. | M02-S1C2-13 | Apply the symbols: +, -, x, ÷, =, ≠, <, >, %. |
| | | | M04-S1C2-10 | Apply the symbol: • and ( ) for multiplication, **and ≤, ≥.** |
| | 3 | *Represent a word problem requiring addition or subtraction through 100 using an equation.* | | |
| | 4 | Identify the value of an unknown number in an equation involving an addition or subtraction fact. | 1 | Use variables in contextual situations. |
| | | | 2 | Find the missing element (addend, subtrahend, minuend, sum, and difference) in addition and subtraction number sentences for sums through 18 and minuends through 9 (e.g., 13 - _ = 8). |

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| Strand 3: Patterns, Algebra, and Functions | | | | |
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| **CONCEPT** | **2008 PO** | **ITEM DESCRIPTION** | **2003 PO** | **ITEM DESCRIPTION** |
| **4. Analysis of Change** | | **No performance objectives at this grade level.** | | |
| | M04-S3C4-01 | **Moved to Grade 4** | 1 | Identify the change in a variable over time (e.g., an object gets taller, colder, heavier). |
| | M04-S3C4-01 | **Moved to Grade 4** | 2 | Make simple predictions based on a variable (e.g., a child's height from year to year). |

| Strand 4: Geometry and Measurement | | | | |
|---|---|---|---|---|
| **CONCEPT** | **2008 PO** | **ITEM DESCRIPTION** | **2003 PO** | **ITEM DESCRIPTION** |
| **1. Geometric Properties** | 1 | Describe and compare the attributes of polygons up to six sides using the terms side, vertex, point, and length. | 1 | Compare attributes of 2-dimensional shapes (square, rectangle, triangle, and circle). |
| | | | M04-S4C1-01 | Identify the properties of 2-dimensional figures using appropriate terminology. |
| | | | M05-S4C1-01 | Recognize regular polygons. |
| | M04-S4C1-05 | **Moved to Grade 4** | 2 | Recognize congruent shapes. |
| | M02-S4C2-01 | **Moved to Strand 4 Concept 2** | 3 | Recognize line(s) of symmetry for a 2-dimensional shape. |
| **2. Transformation of Shapes** | 1 | Identify, with justification, whether a 2-dimensional figure has lines of symmetry. | M02-S4C1-03 | Recognize line(s) of symmetry for a 2-dimensional shape. |
| | M03-S4C2- | **Moved to Grade 3** | 1 | Recognize same shape in different positions (flip/reflection). |

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| Strand 4: Geometry and Measurement | | | | |
|---|---|---|---|---|
| **CONCEPT** | **2008 PO** | **ITEM DESCRIPTION** | **2003 PO** | **ITEM DESCRIPTION** |
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| **3. Coordinate Geometry** | | **No performance objectives at this grade level.** | | |
| **4. Measurement** | 1 | Tell time to the nearest minute using analog and digital clocks. | 3 | Tell time to the quarter hour using analog and digital clocks. |
| | | | M03-S4C4-02 | Tell time with one-minute precision (analog). |
| | 2 | Apply measurement skills to measure the attributes of an object (length, capacity, weight). | 1 | Identify the type of measure (e.g., weight, height, and time) for each attribute of an object. |
| | | | 2 | Select the appropriate U.S. customary measure of accuracy:<br>• length – inches, feet, yards, miles,<br>• capacity/volume – pints, quarts, and<br>• mass/weight – ounces. |
| | | | 5 | Select the appropriate tool to measure the given characteristic of an object. |
| | | | 6 | Measure a given object using the appropriate unit of measure:<br>• length – inches, miles,<br>• capacity/volume – pints, quarts, and<br>• mass/weight – ounces. |
| | | | M02-S1C3-02 | Estimate the measurement of an object using U.S. customary standard and non-standard units of measurement. |
| | | | M02-S1C3-03 | Compare an estimate to the actual measure. |
| | 3 | Read temperatures on a thermometer using Fahrenheit and Celsius. | M03-S4C4-05 | Record temperatures to the nearest degree in degrees Fahrenheit and degrees Celsius as shown on a thermometer. |

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| **Strand 4: Geometry and Measurement** | | | | |
|---|---|---|---|---|
| **CONCEPT** | **2008 PO** | **ITEM DESCRIPTION** | **2003 PO** | **ITEM DESCRIPTION** |
| | 4 | Demonstrate unit conversions<br>• 1 foot = 12 inches,<br>• 1 quart = 4 cups,<br>• 1 pound = 16 ounces,<br>• 1 hour = 60 minutes,<br>• 1 day = 24 hours,<br>• 1 week = 7 days, and<br>• 1 year = 12 months. | 7 | State equivalent relationships:<br>• 12 inches = 1 foot,<br>• 60 minutes = 1 hour,<br>• 24 hours = 1 day,<br>• 7 days = 1 week,<br>• 12 months = 1 year,<br>• 100 pennies = 1 dollar,<br>• 10 dimes = 1 dollar, and<br>• 4 quarters = 1 dollar. |
| | M03-S4C4-01 | **Moved to Grade 3** | 4 | Determine the passage of time using units of days and weeks within a month using a calendar. |

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| Strand 5: Structure and Logic | | | | |
|---|---|---|---|---|
| **CONCEPT** | **2008 PO** | **ITEM DESCRIPTION** | **2003 PO** | **ITEM DESCRIPTION** |
| **1. Algorithms and Algorithmic Thinking** | | **No performance objectives at this grade level.** | | |
| | M02-S1C2-05 | **Moved to Strand 1 Concept 2** | 1 | Create contextual problems that require addition or subtraction with one- or two-digit numbers. |
| **2. Logic, Reasoning, Problem Solving, and Proof** | 1 | *Identify the question(s) asked and any other questions that need to be answered in order to find a solution.* | | |
| | 2 | *Identify the given information that can be used to find a solution.* | | |
| | 3 | *Select from a variety of problem-solving strategies and use one or more strategies to arrive at a solution. * | | |
| | 4 | *Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. * | | |
| | 5 | *Explain and clarify mathematical thinking. * | | |
| | 6 | *Determine whether a solution is reasonable. * | | |
| | | **REMOVED** | 1 | Identify the concepts *some, every*, and *many* within the context of logical reasoning. |
| | | **REMOVED** | 2 | Identify the concepts *all* and *none* within the context of logical reasoning. |

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